Factorising the MCJet correction

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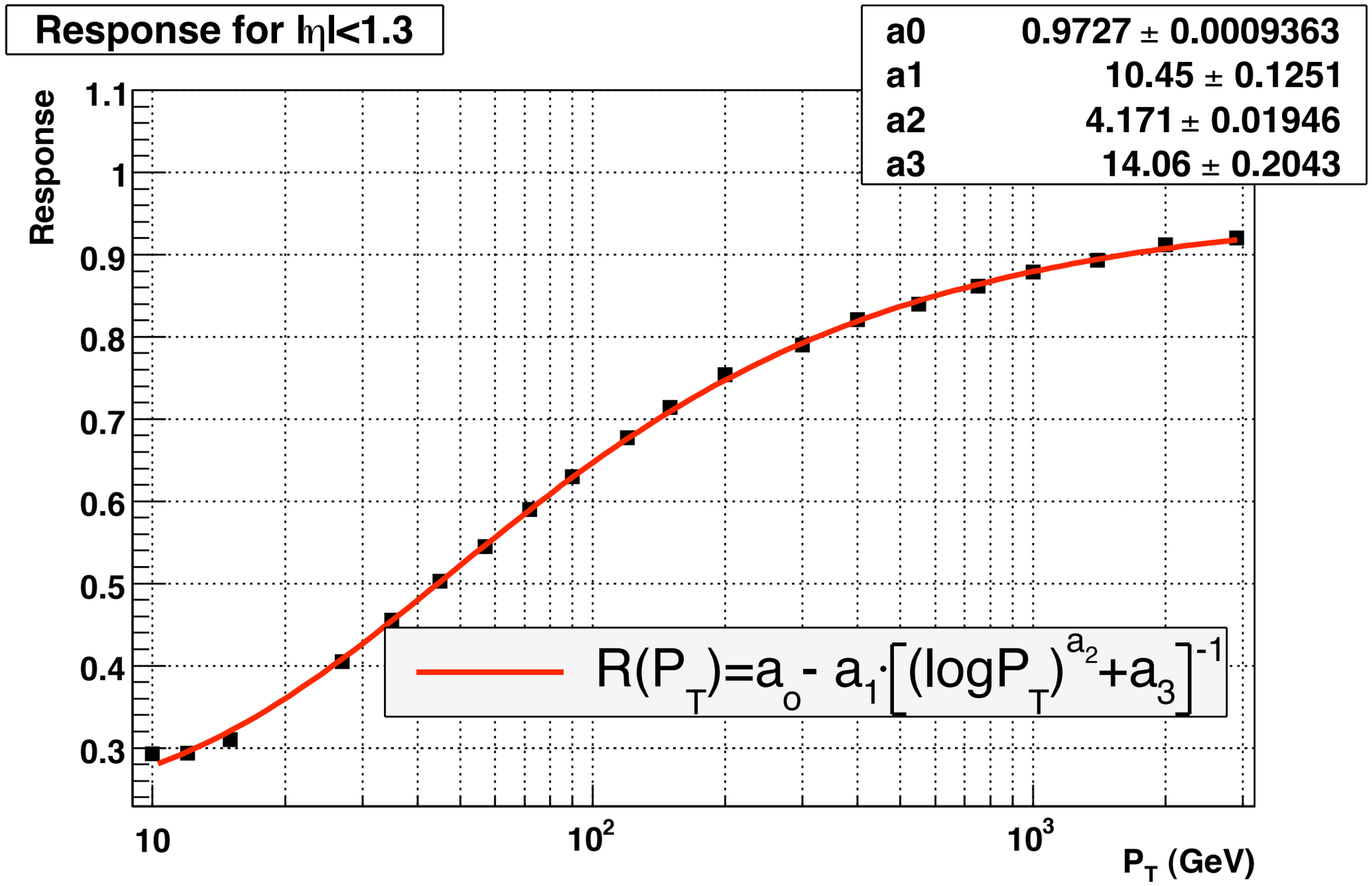
Outline

- Goal: divide the MCJet corrections in two parts (absolute + relative).
- Absolute correction refers to the correction of the response as a function of Pt in a control region.
- Relative correction refers to the correction of the response, as a function of eta in coarse Pt bins, relatively to the control region.

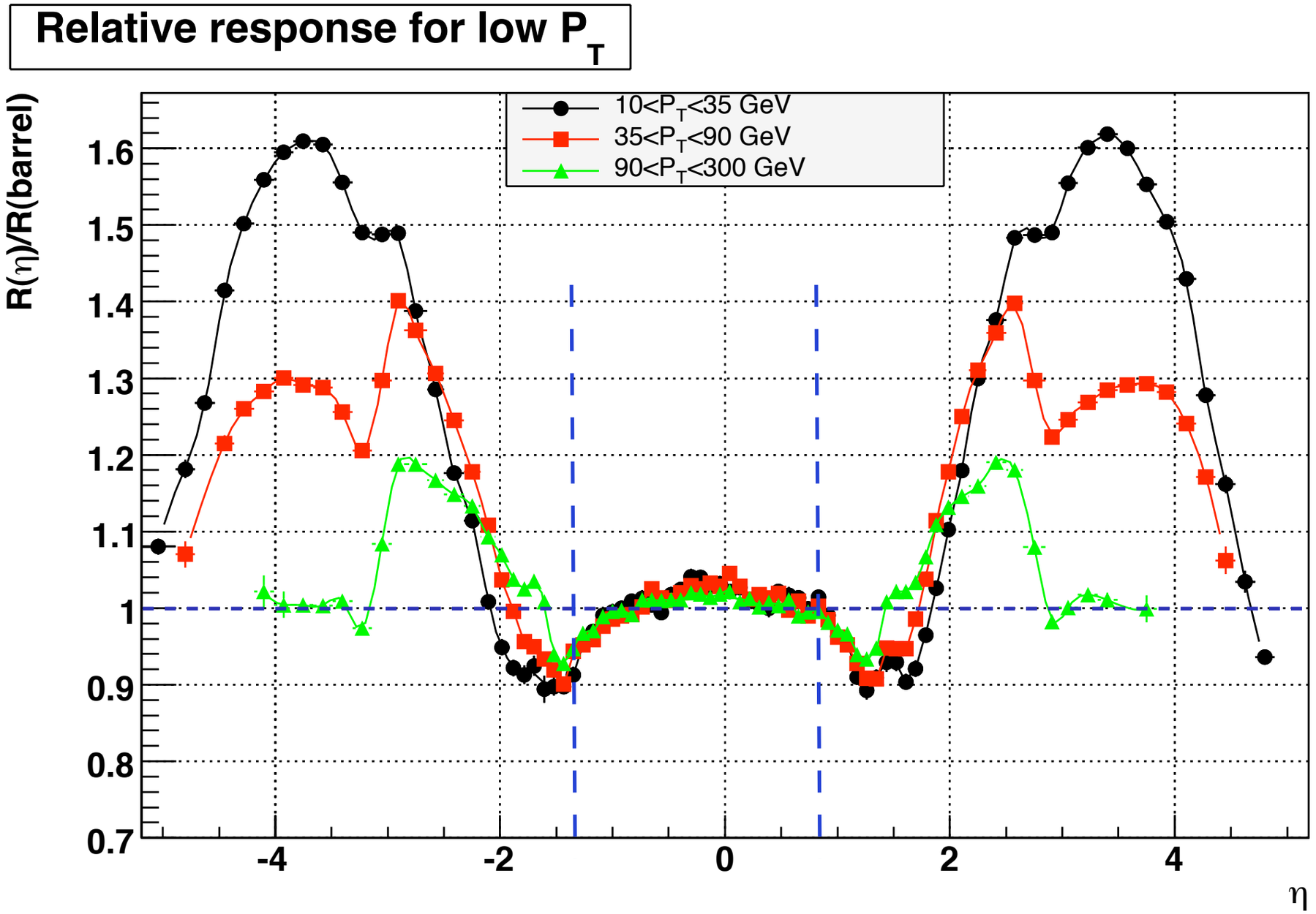
Definitions

- Response: $R(\eta, P_T) = \left[\frac{CaloJetPt}{GenJetPt}\right]_{(\eta, P_T)}$
- Control region: (justified by Physics studies) $\|\eta\| < 1.3$
- Pt is GenJetPt
- eta is reconstructed eta
- Jet algorithm: Iterative Cone R=0.5
- Sample: Spring07
- Input data: ROOT files created during the monolithic MCJet correction process.

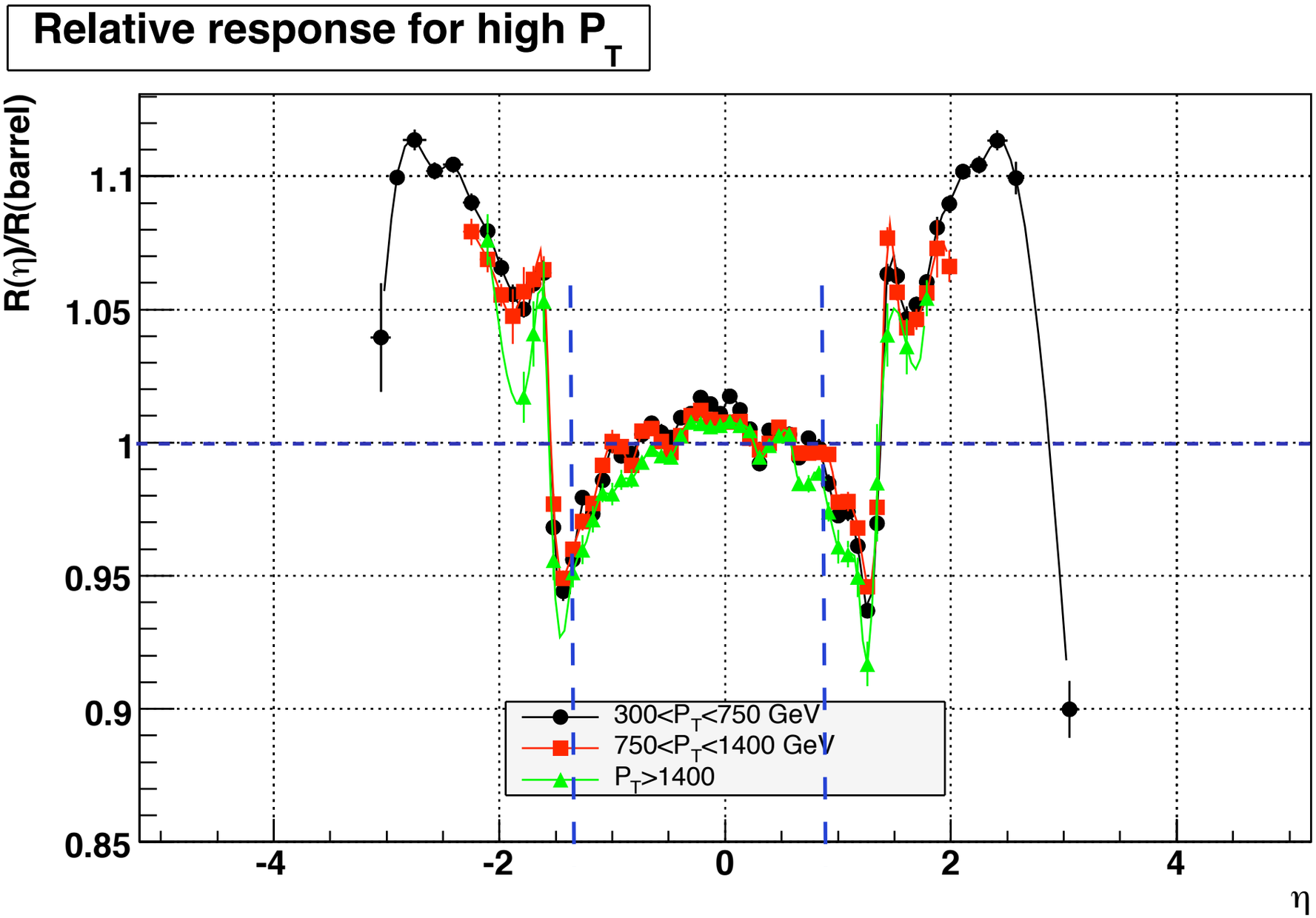
Absolute response



Relative response (low Pt)



Relative response (high Pt)



Remarks

- PRELIMINARY study indicates that factorising the Jet corrections is possible and under control.
- The parametrization of the relative response is done through the TSpline classes of ROOT.
- The parametrization of the absolute response is done through a 4 parameter smooth function.
- The whole analysis process is very fast once the MCJet ROOT files are provided.